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Life History
of
Heteronympha cordace cordace Hubner

by

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Life History of *Heteronympha cordace cordace* Hubner

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INTRODUCTION.

Of the seven species belonging to the genus *Heteronympha* Wallengren, the life history of *H. cordace cordace* Hubner remains the only one to be recorded, although the butterfly itself was described in 1832. Many unsuccessful attempts to obtain its life history have been made during the past twenty years by the late Dr. G. A. Waterhouse and the writer. These have failed because of the assumption that the larva of this species would feed on the same grasses as those of the remaining six species of the genus. However it is now recorded that *cordace cordace* feeds on the Tall Sedge, *Carex appressa* R.Br., and not on any species of grass. The discovery by the writer of female *cordace cordace* ovipositing on *Carex* at Glen Wills, Victoria, during February, 1952, cleared up the problem of the correct foodplant, and enabled the writer to carry the life history through all stages.

DESCRIPTION.

Egg.

Pale apple-green, closely and finely ribbed longitudinally, almost globular but slightly conical at the apex. Average diameter 0.70 mm. Deposited singly as a rule, rarely two or three together, on the underside of the edges of the smaller and lower blades of the foodplant, sometimes on dead blades. Incubation period 14–20 days, February–March, at Blackburn, near Melbourne, Victoria.

Larva.

First stage, very pale-green with a black head. This stage is of short duration lasting a few days only. Length average, 2 mm.

Second stage, pale-green, dorsal line dull olive-green, on either side, and extending to the lateral area, four very fine and two wider longitudinal wavy lines, lateral line blackish and conspicuous. Head not horned, roughened, black, with pale reddish-brown spots on the front, vertex, and sides. Ventral surface of body pale-green. Thoracic legs tipped brown, prolegs and claspers green. Tail bifid, tips of projections pale pinkish-brown. Length average, 7 mm.

Third stage, apple-green, dorsal surface with very fine dull green longitudinal lines, dorso-lateral area with three fine dull green similar lines. First thoracic segment with a slight brownish suffusion near junction with head. Lateral line from segment six to anal segment, dull brownish-black. This line really commences on segment four but is very indistinct before segment six. Head slightly angular across vertex and showing two minute protruberances but not really horned; brownish-red with lighter pale-brown markings shading to darker red-brown at angles on vertex. Ventral area of body apple-green, thoracic legs pale yellowish-brown, prolegs and claspers green, hooks pale-brown. Tail projections pinkish-brown, darkest towards, and at, apices. Length average, 10 mm.

Fourth stage, the general body colour varies in individuals, and may be dull green, greenish-brown, or pinkish-brown; longitudinal lines as in earlier stages. First segment with a dorsal blackish marking, lateral stripe black, conspicuous on segments five to eleven inclusive, fading considerably on segments one to four and on the anal segment. Body surface with transverse rows of minute tubercles. Head brownish or brownish-green with darker rather obscure markings, very finely tuberculate, not horned but straight along vertex thus forming blunt lateral angles. Mandibles brown, biting edges black. Tail projections creamy green along sides and outer dorsal edges. Inner margins smoky black, inner basal portions dull green. Edges of projections bearing short spines. Ventral surface of body dark olive-green, thoracic legs paler, tipped brown, prolegs and claspers dull green, hooks brown. Length average, 14 mm.

The fully-grown larva may be green, greenish-brown, or dark-brown in colour, with the body surface finely shagreened. Dorsal, sub-dorsal, and dorso-lateral lines as in earlier instars; lateral line widely black from segments four to eleven inclusive, only faintly visible on segments one to three. Head dark reddish-brown with paler markings which are less clearly defined than in the earlier stages. A faint narrow dull black mid-ventral line runs from segments four to eleven inclusive. Length average, 23–27 mm. Feeding is done at night, the larvae sheltering by day amongst the basal blades of the foodplant or amongst debris in or near the foodplant. If disturbed the larvae remain motionless and invariably in a straight position, very rarely curled.

Foodplant.

Tall Sedge, *Carex appressa* R.Br. (Cyperaceae). The duration of stages observed from specimens reared at Blackburn, near Melbourne, 400 feet above sea-level. Eggs laid 24th–27th February, 1953, emerged in from 14–20 days. Larva, first instar, average 6–9 days; second instar, 31–39 days; third instar, 31–39 days; fourth instar, 37–43 days; adult instar, 66–73 days.

Pupa.

Suspended head downwards by the cremaster to a small pad of silk attached to a blade of the foodplant or some neighbouring object. Bright-green at first, gradually assuming a very pale-yellowish suffusion on the wing cases. Conspicuously marked with black spots, an irregular black band across the head, usually four black spots on each wing case, a row of three black spots along the dorsal margin of each wing case, a black dot below each eye, from one to three along each antenna, and another at the extremity. On the abdomen two rows of black spots, usually seven in each row, each spot having its lower outer margin with a whitish marking. A lateral row usually of four black dots of which the third remote from the thorax is the largest. Thorax with a faint whitish dorsal line. Head slightly angular, body surface smooth. Abdominal segments greatly compressed ventrally. Cremaster pale yellowish-brown, hooks brown. Length of pupa, average, 12–14 mm. This pupa is a beautiful object, quite unlike that of any other species of the genus *Heteronympha*. The duration of the pupal period varied considerably in the specimens that were bred, ranging from 25 to 38 days.

The life histories of all the species of the genus *Heteronympha* have now been studied, and the larvae are all grass feeders with the exception of *cordace cordace*, and, as far as is known, its races.

The distribution of *Heteronympha cordace cordace* in Australia (as known up to 1945) and Tasmania is set out in National Museum Memoir No. 15, October, 1945, pp. 89-90, where a new race (*wilsoni*) was described by the writer from south-western Victoria. The adults are also figured in the same Memoir, pl. 4 (after p. 96).



Plate 1.

Heteronympha cordace cordace Hubn. Larvae $\times 2$ and Pupae $\times 2\frac{1}{2}$



W. M. Houston,
Government Printer, Melbourne



